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Inaugural dissertation
on
The congestive form of Typhus.
Submitted to the Faculty

Dated March 4th. 1827
of W. L. H.
The University of Pennsylvania,

for
The degree of Doctor of Medicine,
by

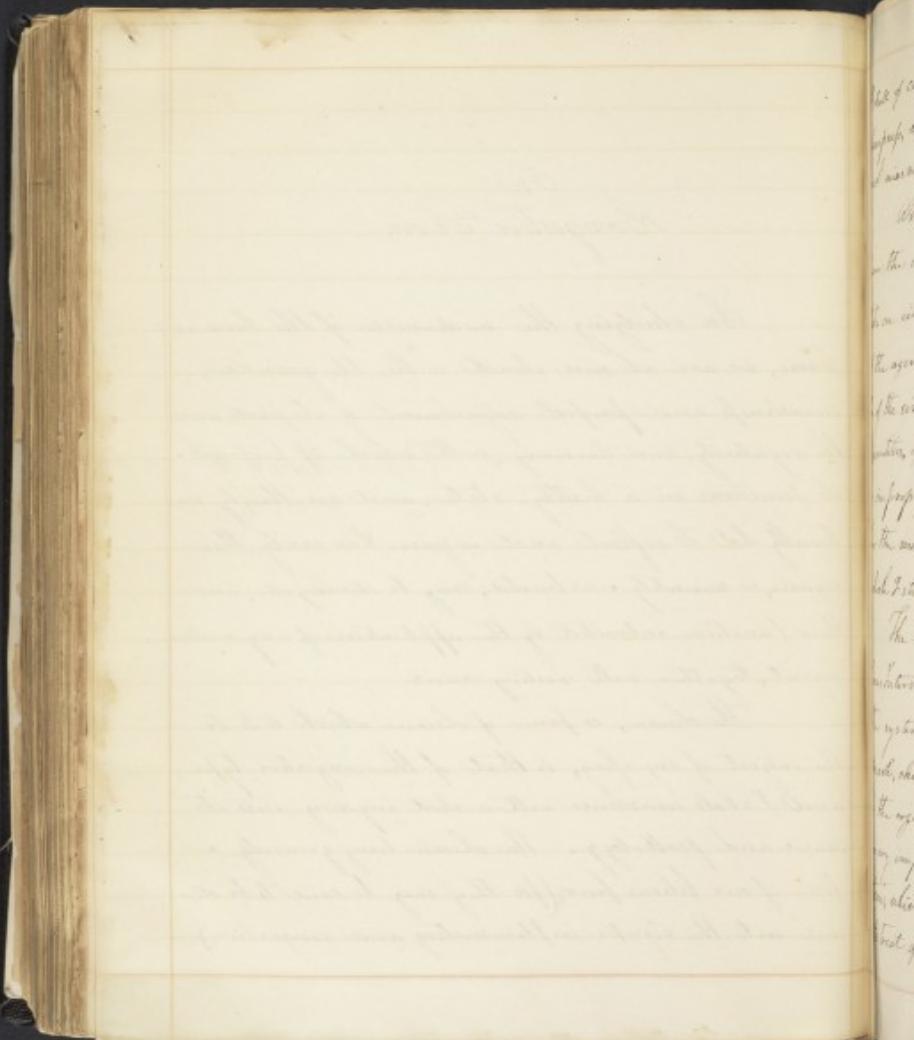
George Field
of Virginia.

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On
Congestive Fever.

In studying the mechanism of the human frame, we are at once struck with the grandeur, minuteness and perfect adjustment of its parts, and the regularity and harmony with which it performs its functions in a healthy state; and are thence naturally led to reflect and inquire how easily those organs, so minutely constructed, may be disengaged, and their functions subverted by the application of any noxious agent, together with exciting cause.

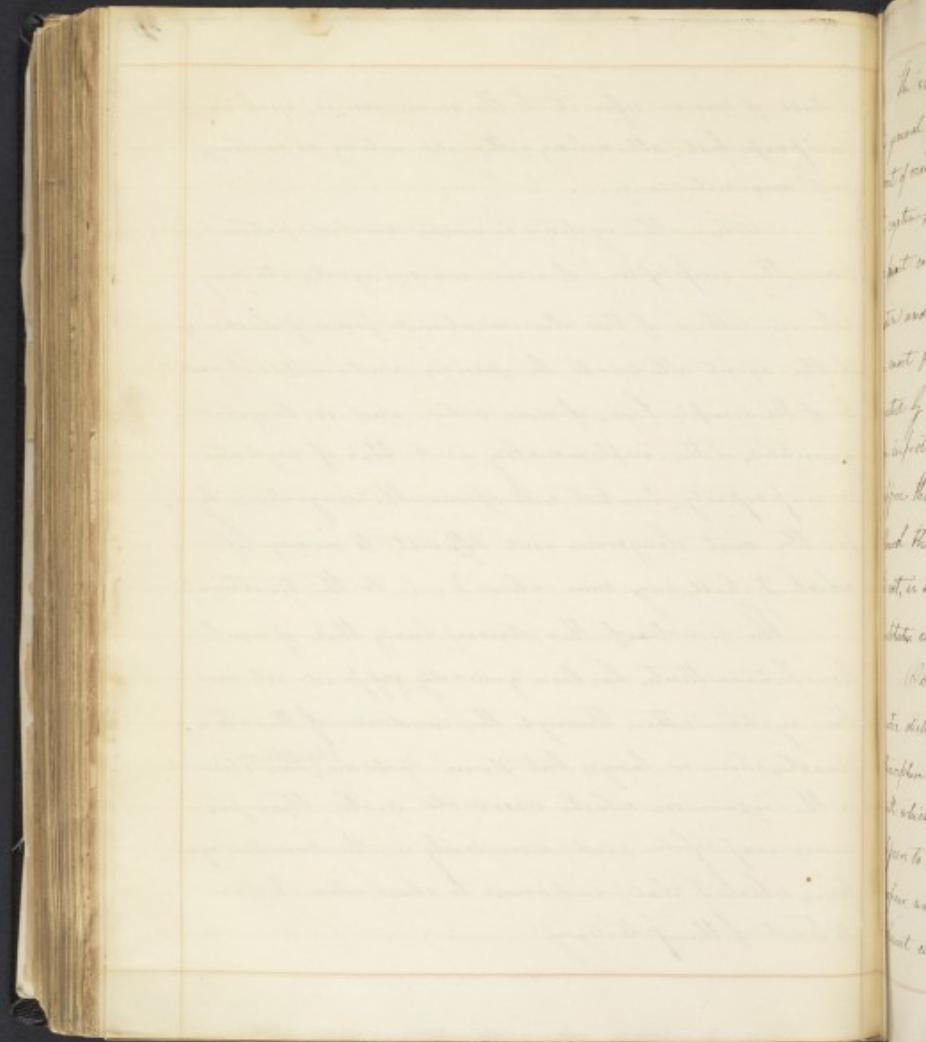
The disease, or form of disease which is to be the subject of my essay, is that of the congestive type, and I shall commence with a short inquiry into its cause and pathology. This disease being generally a form of our bilious fever (for they may be said to be divided into the simple inflammatory and congestive,) is



I shall of course refer it to the same causes, such as, dampness, heat, alternating with cold acting as exciting, and miasmata cause.

When the system is under morbid action from the infiltration of some noxious agent, it may, take on either of the above mentioned forms of disease, if the agent alluded to be sparing, and mild it will be of the simple form, if more active and in larger quantities, of the inflammatory and then if neglected or improperly treated will assume the angustive, by far the most dangerous and difficult to manage, of which I shall say more when I come to the treatment.

The remotion of this disease being that of our tertious Intermittents, has been generally supposed act on the system either through the medium of the stomach, skin or lungs; but I am induced, ^{thinking that} the stomach is the organ on which miasmata make their primary impression and secondarily on the vascular system, which I shall endeavour to show when I come to treat of the pathology.



The stomach being so universally connected with the general system by sympathy, in a functional point of view, one of the most important organs in the system; and being that in which, on affection, we first commonly find a greater degree of inflammation and other morbid appearances than any other, in most febrile affections; more particularly those excited by aerial poisons or the specific effluvia from an infectious disease:— it is reasonable at once to suppose that this of the three media which we have allowed the remote cause of the disease in question to act, is that one through which it most frequently initiates its morbid action.

When we consider that persons living a micromatic district are constantly inhaling the surrounding atmosphere and consequently the sulphuric exhalations with which, at some seasons, it is impregnated; it appears to me that a sufficient quantity of this noxious vapour would be inhaled to bring on disease at once almost without failure, but we have known instances

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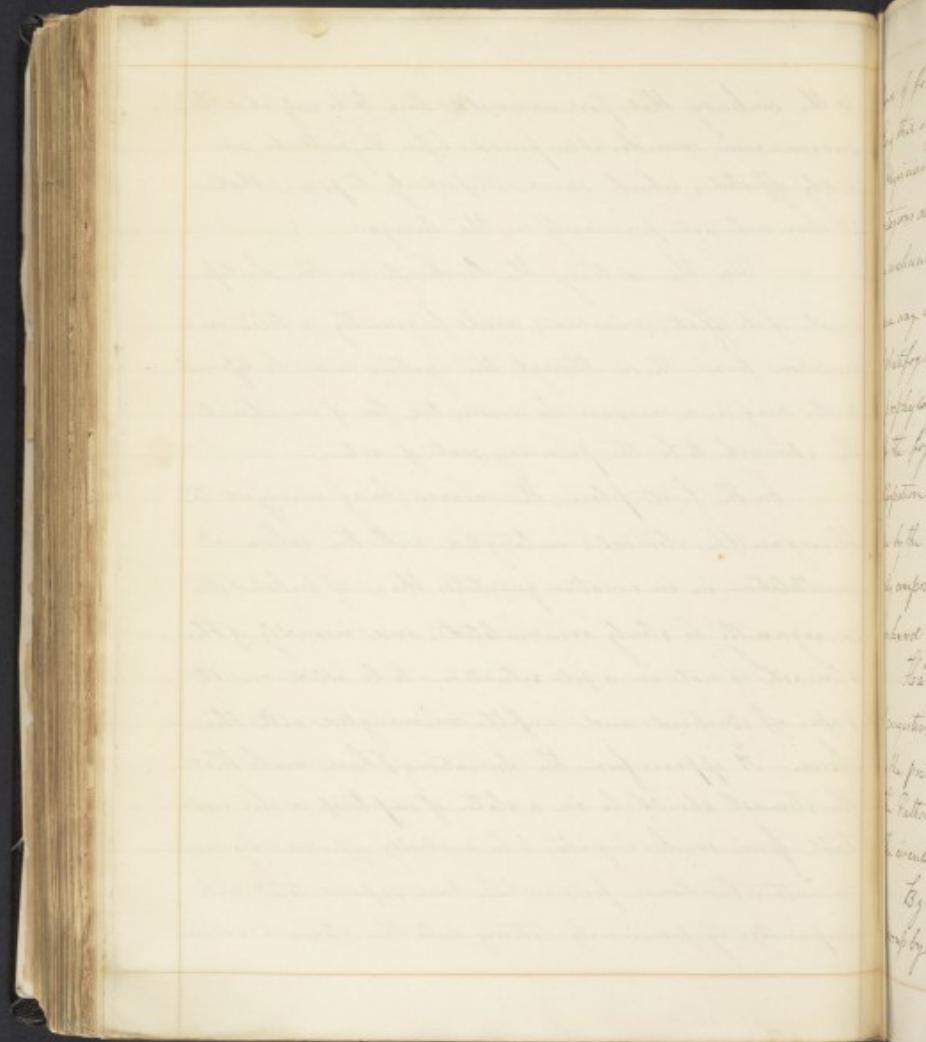
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to the contrary, that persons would have to be subjected to
vapours some considerable period before they will be mor-
bidly affected; which seems satisfactorily to prove that
it does not act primarily on the lungs.

On the contrary, the tardiness in the development of its effects, (miasmas) and frequently a total ex-
emption from them through the system may be exposed
to it, may in a measure be accounted for if we admit
the stomach to be the primary seat of action.

In the first place, the miasmatic vapour excreted by
the organ (the stomach) entangled with the saliva it
is mistaken in in smaller quantities than if inhaled, &
consequently be slowly accumulated; and secondly if the
stomach is not in a fit situation to be acted on its
power of rejecting and unfit commingled with the
feces. It appears from the observations I have made that
the stomach should be in a state of emptiness or else irre-
sistible from crude ingesta, to be morbidly affected by mi-
asmas, for hence persons have been exposed to it with
impunity by previously taking into the stomach some



kind of food which seems to act as a lining in defending this organ. The same practice has been followed by Physicians who have to attend in Infemaries amidst contagious diseases, contagion I presume acting, respecting the medium through which its action is produced, in the same way as magnetism. And hence also the common use of Antiphlogistic, which, though it may not act really as a prophylactic, is taken early in the morning to keep off the fever, this being the most favourable time for the absorption of succinata, from the evaporation of the dew by the warmth of the rising sun, it being principally composed of the heterogeneous particles of the atmosphere condensed by the cooling of the preceding night.

Hearing in the preceding pages given the causes of congestive fever, and attempted to establish the stomach as the primary seat of action; I will go into treat of the Pathology first inquiring into the capacities of the circulatory system.

By the term circulation we mean that process by which the blood is carried from the heart

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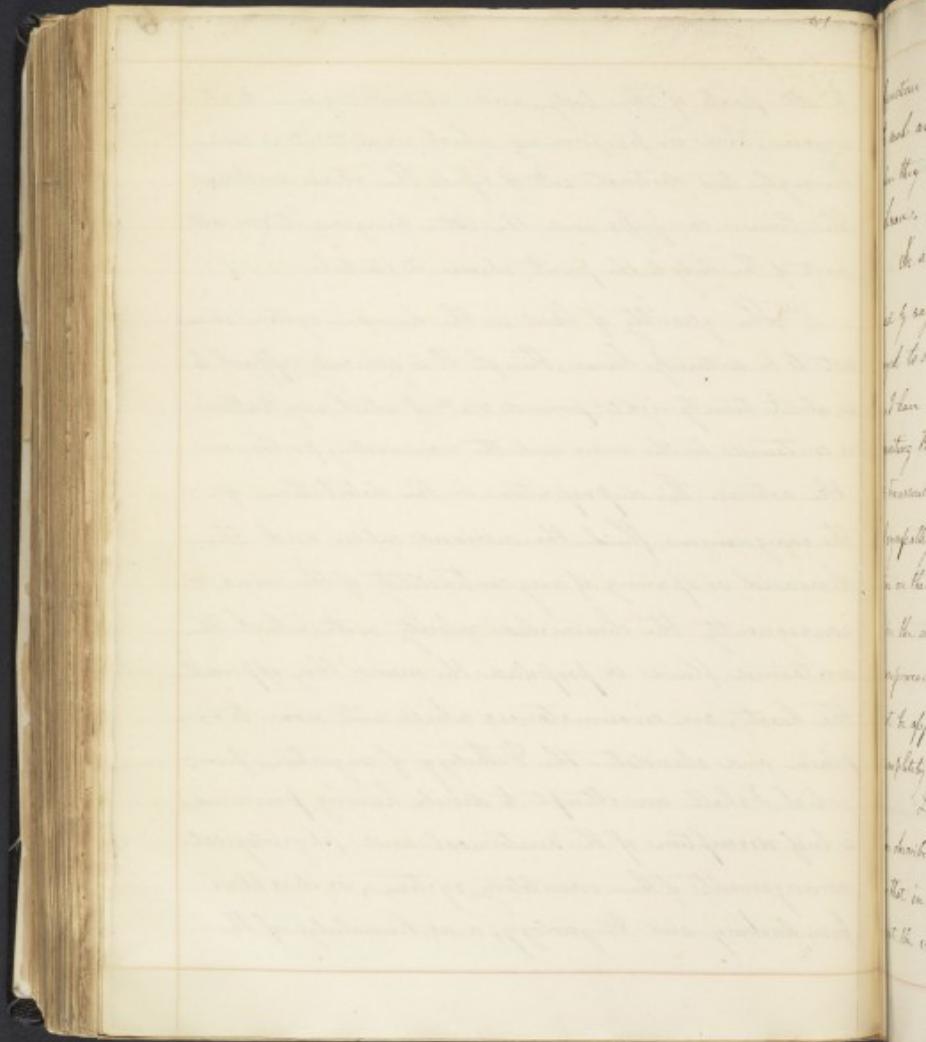
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to all parts of the body, and returned again to its source; and in performing which circuit it is conveyed through two distinct sets of vessels the arteries and veins, the former carrying and the latter bringing it from all parts of the body to the point whence it started.

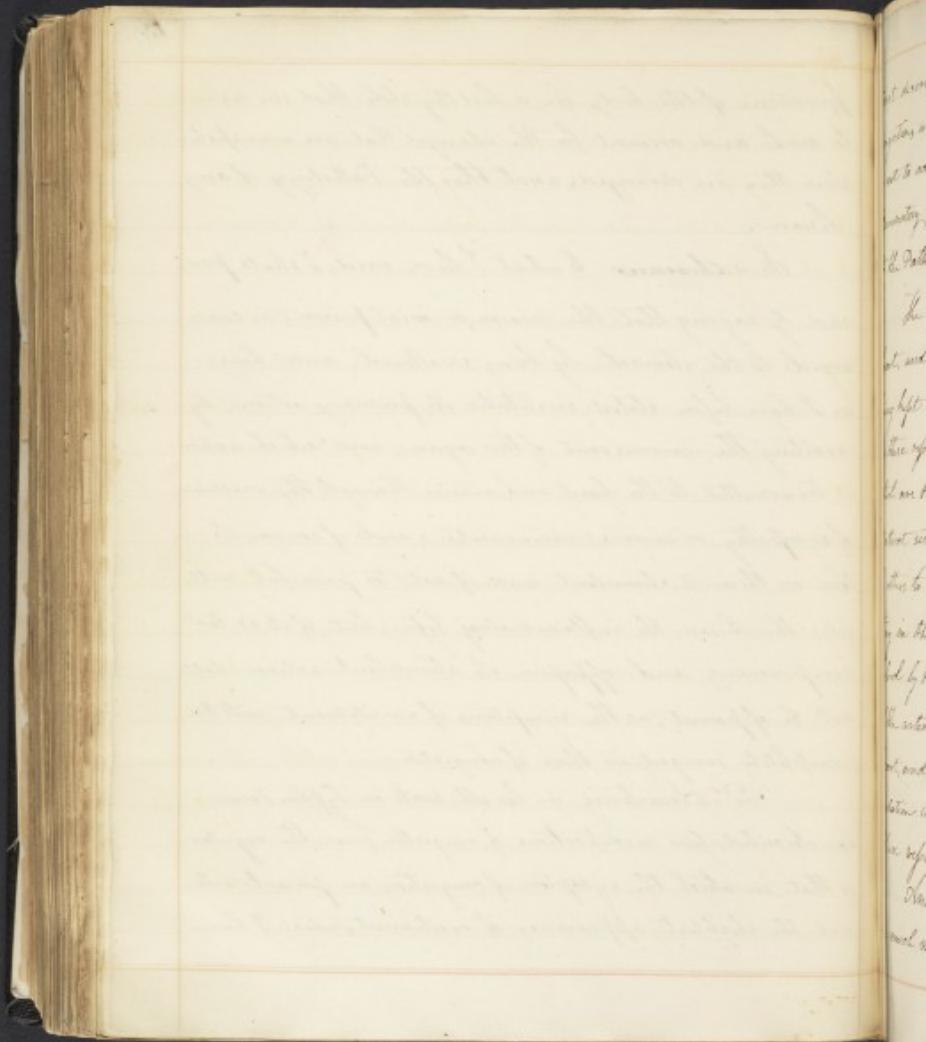
The quantity of blood in the human system seems not to be certainly known, though it is generally supposed to be about twenty-eight pounds $\frac{3}{4}$ lb. of which say Haller is contained in the veins and the remaining portion in the arteries. The disproportion in the distribution of the sanguineous fluid, the increased caliber and the decreased or sparing if any contractility of the veins, & consequently the diminished velocity with which the contained fluid is propell'd the nearer they approach the heart, are circumstances which will soon to explain and elucidate the Pathology of congestive fever, which I shall now attempt to describe having promised a brief description of the anatomical and physiological arrangement of the circulatory system, as it is alone, from Anatomy and Physiology, or a knowledge of the



functions of the body in a healthy state that we are
to make and account for the changes that are manifested
when they are disarranged; and thus the Pathology of any
disease.

In addition to what I have said, I shall pro-
ceed by saying that the miasma, or social poison, is con-
veyed to the stomach, by being swallowed, and here,
as I have before stated initiates its primary action, by
exciting the nervous coat of this organ; and which action
is transmitted to the heart and arteries through the medium
of sympathy or nervous communication; and of course its ac-
tion on them is stimulant and if not too powerful, will
give the disease the inflammatory type; but if it is too
overpowering, and oppressing its stimulant action will
not be apparent, as the symptoms of excitement will be
completely merged in those of congestion.

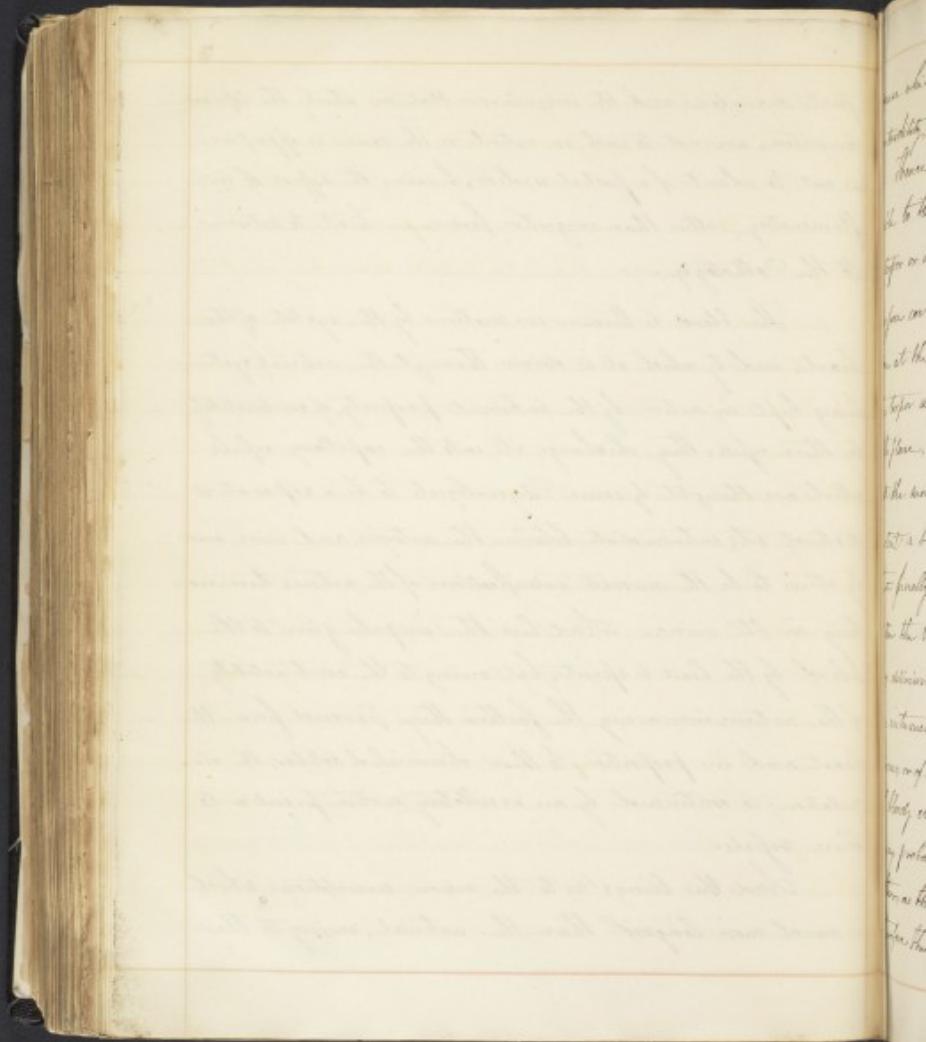
Dr. Homestrong, in his able work on Typhus Fever
has described two modifications of congestion fever, the regular
or that in which the symptoms of congestion are present without
the slightest appearance of excitement, which I have



just described, and the irregular, or that in which the topical congestions are not to such an extent, or the cause so offensive, as not to admit of a pastoral reaction, bearing the aspect of inflammatory, rather than congestive fever.—But to return to the Pathology.

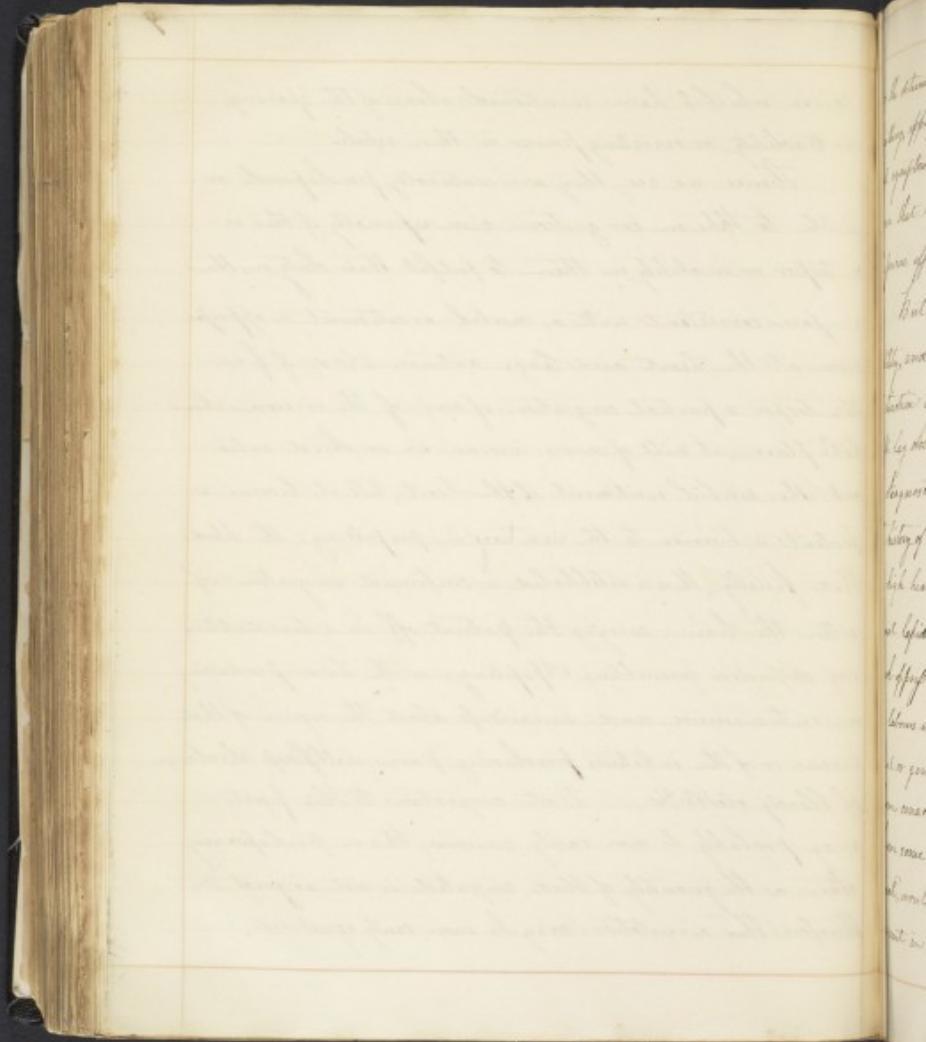
The blood is drawn in motion by the systole of the heart, and by which it is driven through the arterial system, being kept in motion by the inherent property of contractility in those vessels; they discharge it into the capillary vessels, which are thought by some Physiologists to be a separate & distinct set, intermediate between the arteries and veins, and by others to be the minute ramifications of the arteries terminating in the veins. And here the impulse given to the blood by the heart is spent, but owing to the contractility of the arteries, increasing the farther they proceed from the heart, and in proportion to their diminished caliber, the circulation is continued by an oscillatory motion peculiar to these vessels.

And this brings us to the venous circulation, which is much more languid than the arterial, owing to the



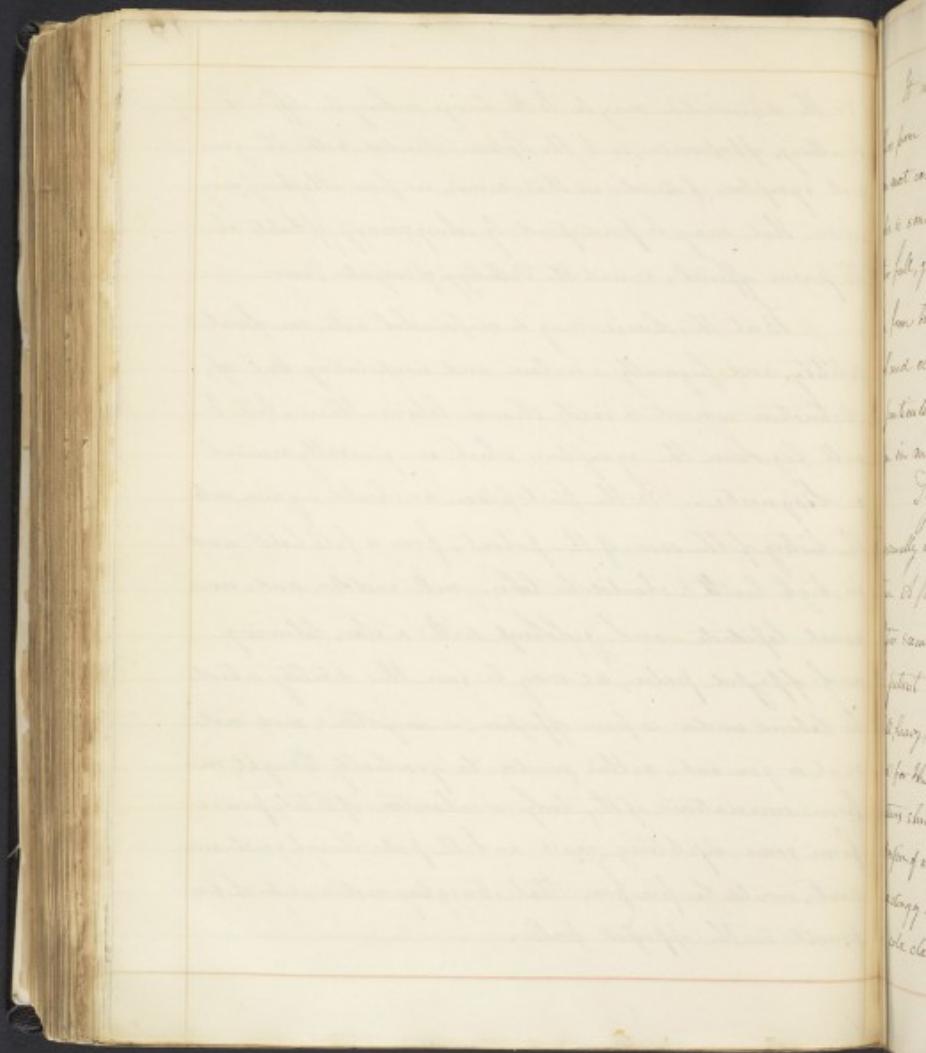
cause which I have mentioned above of the sparing,
contractility, or resisting power in these vessels.

Since we see they are naturally predisposed or
 liable to take on congestion, more especially if there is
 a torpor or inability in them to fulfil their duty on the
 surface co-existent with a morbid excitement or oppres-
 sion at the heart and large arteries. And if from
 this torpor a partial congestion of any of the viscera should
 take place, it will of course increase in a direct ratio
 with the morbid excitement of the heart, till it become so
 potent a barrier to the circulation in propelling the blood
 that finally there is established a confined congestion of
 either the brain, carrying the patient off in a low muttering
 delirium resembling Epilepsy, or the Liver producing
 an insensibility and uneasiness about the region of that
 viscous, or of the intestines producing pain with a discharge
 of bloody stools &c. But congestion to this part
 may probably be more easily overcome than perhaps any
 other, as the quantity of blood congested is not so great &
 therefore this circulation may be more easily equalised;



or the determination may be to the lungs ending in difficult breathing, oppression, &c, or to the Spleen attending with the general symptoms of disorder in that viscus, in few attacking any organ that may be predisposed by idiosyncrasy of habit in the person affected; & ends the Pathology of congestive Fever.

But this disease may be confounded with one of local debility, and frequently a certain and undividing line of distinction cannot be easily drawn between them, but I will lay down the symptoms which are generally required to diagnose it. In the first place we should inquire into the history of the case, of the patient, from a full habit and in high health, should be taken with sudden and unusual languor and giddiness, with a slow, laborious, and oppressed pulse, we may be sure the debility which he labours under is from oppression, or congestion; and not real or general, as this would be gradually brought on from emaciation of the body, or exhaustion of vital power from some debilitating cause, and the pulse though quick and weak, would be free from that struggling motion which is present in the oppressed pulse.



It may also be asked in what this form of fever differs from inflammatory fever; but the distinction however in most cases plain and easily marked; in the one the pulse is small, weak, quick, and easily compressed, in the other full, quick, hard and incompressible; in the congo-
tive form there is a total absence of heat, the surface cool and clammy; in the inflammatory, external heat is particularly manifest, the skin hot and dry, the face in most cases highly flushed &

Symptoms— An attack of congestive fever is generally ushered in or made manifest by the following symptoms. A full heavy perspiration approaching to intemperance stupor seems to trouble operation of the brain, giving to the patient the appearance of inebriation, the eye is dull, heavy, and watery, with an inanimate expression, and for the most part suffused with a reddish hue; the features shrunk, face pale and placed with a countenance expression of anxiety; the skin over the whole surface is soft of a clinging appearance, moistened in almost all cases with a cold clammy sweat, having partially lost its sensibili-

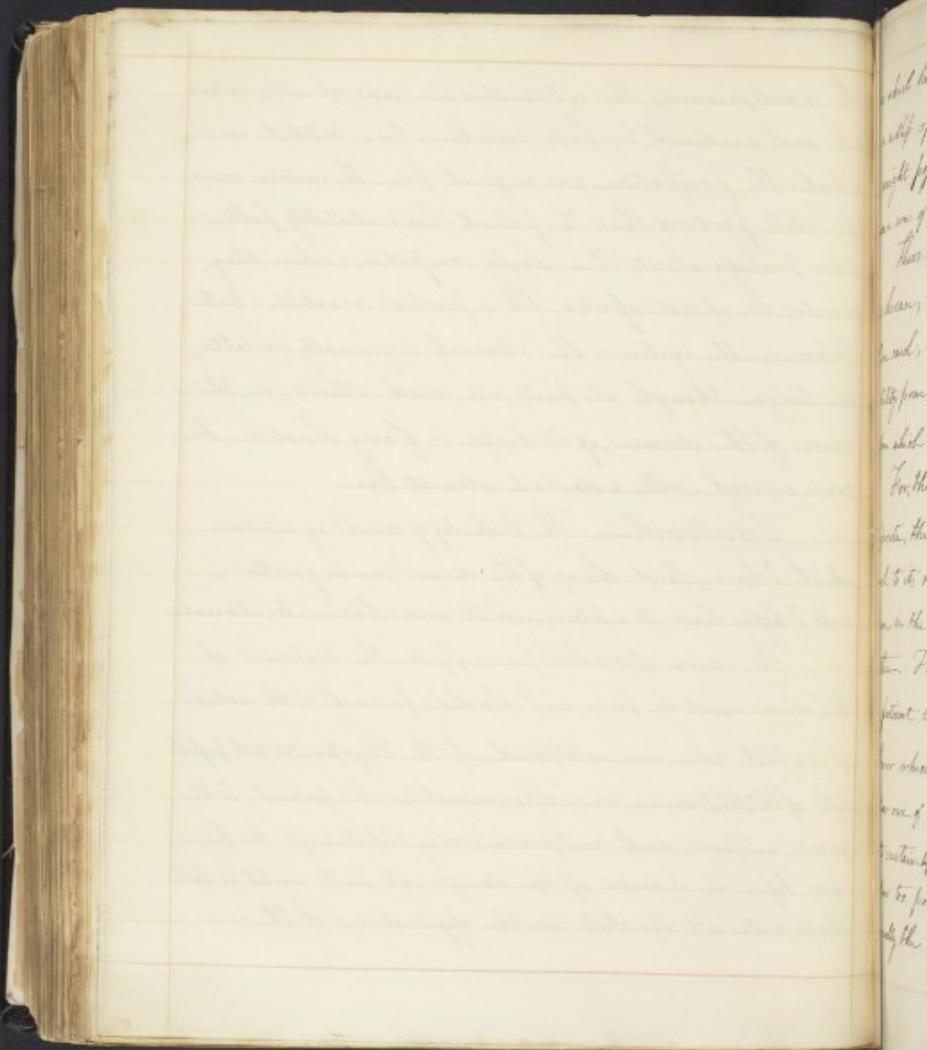
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to the rubescents; the extremities are considerably relaxed and weakened, in fact cases have been related in which the prostration was so great from the sudden comatose state produced that the patients have absolutely fallen when perhaps about their daily occupation; where they would be if not arrested till a partial reaction took place in the system; the stomach is generally irritable; the tongue though at first not much altered, in the course of the disease, if it should be of any duration, becomes covered with a darkish coloured fur.

Treatment—The Pathology and symptoms which I have laid down of the disease now in question, will I hope lead to a plain, correct and certain treatment.

The course of practice pursued in the treatment of this disease must be firm and decided; for such is the nature of it, that when once established, if the Physician is not possessed of the confidence and discrimination, his patient, to his great surprise and mortification, may slip through his fingers before he is aware of the danger, at least until so late that with all his skill in the application of the various



dis which his proffision affords he will be compelled to be a useless spectator to the death of his patient whom he might possibly have saved if he had known that the disease was of the nature it proved to be at too late a period.

Thus we see the obscure and insidious character of this disease, and the great point of difficulty is, as I have before said, to distinguish between apparent weakness, or debility from opposition, and real or that from abstraction, upon which distinction alone depends a correct practice.

For, the two states of the system being diametrically opposite, the remedial agents also, of course are adapted, each to its respective symptoms; and those which would cure in the one case, would almost certainly kill in the other. For instance let us suppose we were called to a patient labouring under the symptoms of congestive fever which I have described, and were to mistake it for one of real debility, and were of course to exhibit stimulants, sustaining thereby still adding to the heat which is then far too powerful for the vital energy present till finally the system sinking "suo pondere," kills the patient.

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into an interminable calamity. We should perhaps, from reflecting on the symptoms and termination, be convinced of our error—but too late.

In pursuing my subject I shall enumerate the remedies which have been most generally used and attended with the greatest success in our district of country, where this form of disease has been quite prevalent within the last two or three years. And I shall take into consideration first that of Blood-letting.

This seems to be a hazardous remedy, with some, Dr Rush in mentioning the state of fever in which it should be forbidden says, "that it should not be resorted to in that state of fever in which there is a topical engorgement of any of the viscera, and here we partly agree with our illustrious author, but must by law to differ from him in prescribing it altogether, for when timely, resorted to, that is, in the onset of the disease or before the universal collapse commences, and judiciously used, I believe it is certainly one of the most appropriate and certain equalizers of the circulation we can have recourse to, but which is by no means

to be abused. For if we carry it too far the object we have in view is defeated, as the remedy will tend rather to increase than relieve congestion which we aim to remove, by too suddenly weakening the heart and arteries and thereby disabling them to diffuse the blood.

This remedy may be prescribed either general as U.S. or topical as cups and lacches. The latter should be applied over the part congested, or near it, as to the temples, back of the neck and perhaps the whole head if the brain is threatened; or over the right hypochondriac region of the liver if oppressed etc. Asteriotomy may also be resorted to, but this operation is seldom performed I believe antip these apprehensions of serious consequences from sudden effusion of the brain.

Should the universal collapse come on before we see the patient, we should use stimulants, or opium combined with Calomel, of which Dr Armstrong speaks very highly.—

As there is in almost every form of fever as stage of partial sleep, we have to discriminate between the partial collapse, and the universal or critical one, which may prove

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wally, be done, if not before, after the flowing of a little blood from N.S., which at the same time satisfies us as to the correctness or incorrectness of the remedy; for if after opening the vein and the evacuation of a small quantity blood, we find the pulse become fuller, firmer, and softer, we may be satisfied that the collapse or ditility is apparent, and that blood-letting is the proper remedy. But if on the contrary, after the abstraction of blood the pulse become slower, smaller, and weaker, we must immediately abandon the remedy, as being inapplicable and dangerous.

In the treatment of this form of fever, the chief indication is to equalise the circulation, or restore its balance, and change the disease into one of exudement or inflammatory character to be managed by depleting remedies. The remedy of which I have been speaking, is generally, a depleting one but it seems better to call it in this place an equaliser, if not indeed a stimulant, as the circulation, if it labour under congestion, must be first equalised before it can be said to be under actual depression.

The next remedy or set of remedies which I shall con-

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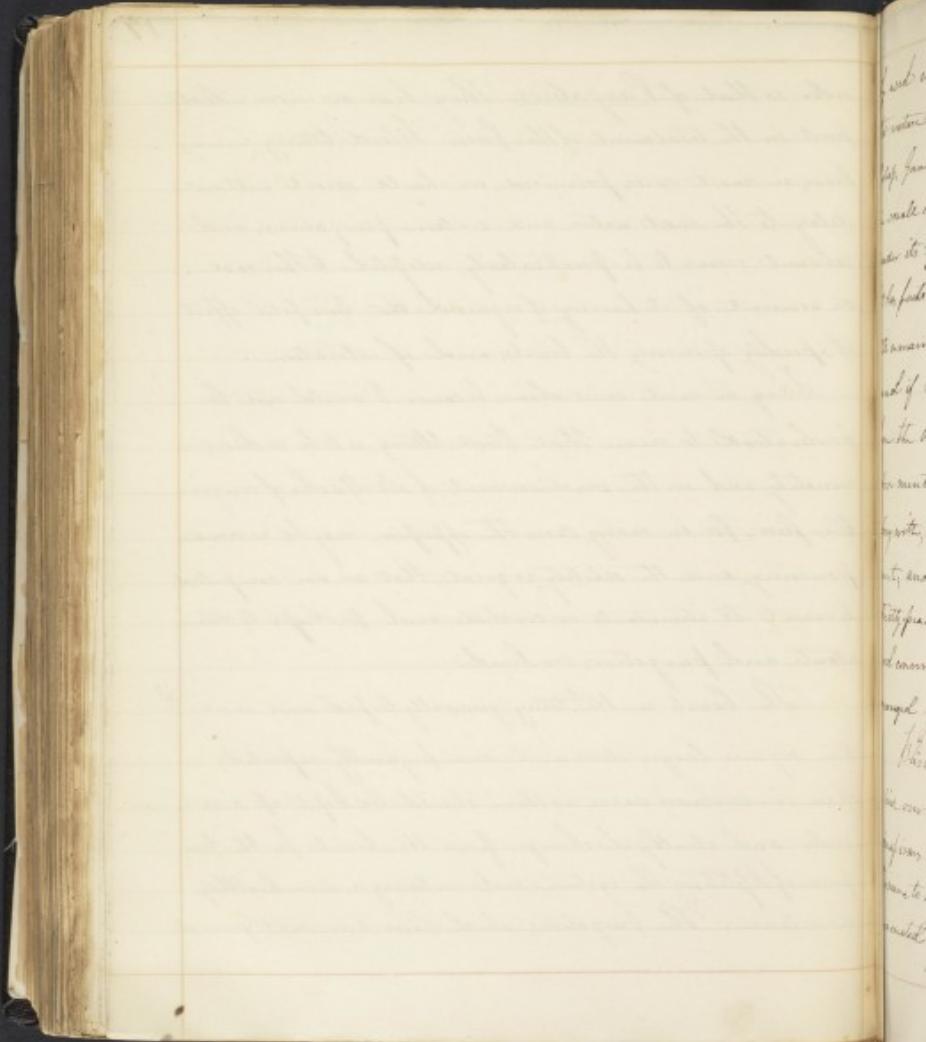
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sider is that of Purgatives. They bear no inconsiderable part in the treatment of this fever. Blood-letting, having been in most cases promised, we should resort without delay to the most active and certain purgatives; and calomel seems to be particularly adapted to this case on account of its having of quinino the two-fold effect of speedily opening the bowels, and of salivation.

I say in most cases above, because I would not be understood to mean that blood-letting is to be indiscriminately used in the commencement of all attacks of congestive fever, for in many cases the affection may be so acute, towering, and the debility so great, that we are compelled to resort to stimulants or cordials, and perhaps to stimulants and purgatives combined.

The bowels in this ^{fever} generally tend to evacuate, require larger doses and more frequently repeated than in common cases, as there should be kept up a regular and steady discharge from the bowels for the purpose of detaching the system and restoring a more healthy circulation. The purgatives which have been most general



by used with us, or those which are commonly of a choleric nature, either singly, or combined, or calomel and jalap, Gamboge, Aloes, &c, but the former of these given in small and successive doses until the system is under its specific effect, is an excellent remedy when it has faded with a view to its purgative effect, and then it remains a usual arrangement of the system; and if the stage of excitement is not manifest from the blesting, and purgative effect of the medicines above mentioned, we shall now see it happily developed along with, and perhaps merged in, the mercurial excitement; and then we may be said to have removed, strictly speaking, the congestion character of the disease, and converted it into one of inflammatory type to be managed by a general antiphlogistic treatment.

Blisters are frequently of service in congestion applied over the part supposed to be congested, as also are strong fomentations and other rubefacients which are used to drawne to the surface. After the system has been evacuated by bleeding and purging, there may still be

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a tardy restoration of the balance of the circulation
in consequence of the heart and arteries having been
formerly in a partially inactive or oppressed state,
which may require the exhibition of stimulant re-
medies to encourage their action; or as I have before
observed, this treatment may probably be alleviated
with diffusing remedies, the carbonas Ammoniae in
small and fragrant doses is a favorite remedy of
Dr Armstrong to meet this indication - and might
not an emetic be serviceable in producing this reaction;
as it is well known to have the effect of determining
the fluids to the surface and thereby would aid in
qualifying the circulation.

